

Psychoeducation for Adults With Attention Deficit Hyperactivity Disorder vs. Cognitive Behavioral Group Therapy

A Randomized Controlled Pilot Study

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Abstract: The aim of the present study was to assess the efficacy of psychoeducation as compared with cognitive behavioral group therapy in adults with attention deficit hyperactivity disorder (ADHD) who still had significant symptoms and were in pharmacological treatment. This is the first study on psychoeducation in adults with ADHD. Thirty-two individuals were randomized to two treatment conditions: 15 were in the psychoeducation group and 11 were in the cognitive behavioral group therapy. A total of 30 completed treatment, and 26 completed the follow-up assessments. The results indicated that both treatments were associated with statistically significant improvements on inattention, hyperactivity, impulsivity, and self-esteem. The patients in both groups showed a decrease in anxiety symptoms and obtained significantly lower scores in depression. Measures on functional impairment showed statistically significant differences on improved quality of life and on lower global severity as perceived in self-report and assessed by clinician report. Psychoeducation demonstrated to be an effective treatment in reducing ADHD core symptoms.

Key Words: Attention deficit hyperactivity disorder, adults, ADHD, psychoeducation.

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Attention deficit hyperactivity disorder (ADHD) is a developmental neurobiological disability that appears in childhood and persists into adulthood in most cases, causing functional impairment (Barkley et al., 2002; Murphy et al., 2002). Although psychopharmacology is considered the first-line treatment of adults with ADHD (NIMH, 2008), some patients have a partial response (Wender, 1998). There are several factors that can affect its efficacy and adherence: 20% to 50% of patients present an inability to tolerate adverse effects of medication (Wilens et al., 2001) and 70% to 75% of patients present psychiatric comorbidity that interferes in the management of ADHD symptoms (Wilens et al., 2002). In addition, there are psychological variables that can contribute to the maintenance of some ADHD symptoms such as compensatory strategies and dysfunctional cognitions (Knouse and Safren, 2010). These factors suggest that, in addition to pharmacological strategies, psychological interventions may be needed.

Cognitive behavioral therapy (CBT) is the most evidence-based psychological treatment of adults with ADHD (Vidal et al.,

2012). CBT approaches have demonstrated to be effective in reducing ADHD core symptoms and comorbid symptoms such as depression and anxiety. Six uncontrolled studies have been published on different CBT approaches: one study on CBT in a group format (Virta et al., 2008), one on individual format of CBT combined with psychopharmacological treatment (Rostain and Ramsay, 2006), one investigation on meta-cognitive therapy (Solanto et al., 2008), two studies on dialectical-behavioral group therapy (Hesslinger et al., 2002; Philippsen et al., 2007), and one research on mindfulness (Zylowska et al., 2008). Most of these studies have been extended to posterior controlled investigations (Hirvikoski et al., 2011; Solanto et al., 2010; Virta et al., 2010).

Ten randomized controlled trials have been published on CBT for adults with ADHD. Several researches have assessed CBT in an individual format and found that CBT decreased ADHD core symptoms compared with a medication-alone group (Safren et al., 2005) and also comorbid symptoms such as anxiety and depression compared with a relaxation group (Safren et al., 2010) and with a cognitive training group (Virta et al., 2010). Moreover, CBT has been tested in a group format, obtaining improvements on knowledge about ADHD, self-efficacy, and self-esteem (Bramham et al., 2009). The same results have been found by researches on dialectical-behavioral group therapy (Hirvikoski et al., 2011; Phillippsen et al., 2010), whereas meta-cognitive therapy (Solanto et al., 2010) has shown to be effective in reducing inattentive symptoms but not hyperactive/impulsive symptoms. In addition, cognitive rehabilitation has demonstrated to reduce the ADHD core symptoms but not comorbid symptoms (Stevenson et al., 2002, 2003). Recent studies have addressed the efficacy of CBT combining a group format and individual sessions compared with psychopharmacological treatment (Emilsson et al., 2011) and treatment as usual (Young et al., 2012), demonstrating that CBT improves pharmacological intervention. Indeed, it has been reported that CBT without pharmacological treatment can also be effective in reducing ADHD symptoms in adults with ADHD (Weiss et al., 2012).

Psychoeducation is another psychological approach different from CBT. This treatment is an intervention focused on the patients' comprehension of their own disorder. Its objective is improving the patients' understanding and awareness of the disease. Previous studies on ADHD (Bramham et al., 2009; Young et al., 2008) and the Consensus of the European Network Adult ADHD (Kooij et al., 2010) draw attention to the importance of psychoeducation in the psychological treatment of adults with ADHD. These recommendations point out that psychoeducation can offer insights into past difficulties, can decrease feelings of guilt, can improve the general functioning of the patient, and can raise the need to develop structured psychoeducation programs.

Psychoeducation has demonstrated its efficacy in other disorders, such as bipolar disorder (Batista et al., 2011; Rouget and Aubry, 2007), showing improvements on psychosocial functioning, the clinical

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course of the disorder, treatment adherence, and decreasing the number of relapses. The same results have been reported on psychoeducation for schizophrenia (Rummel-Kluge and Kissling, 2008; Xia et al., 2011), showing that psychoeducation seems to reduce relapse in patients with psychotic disorders, decreases readmissions, encourages medication, and also increases the quality of life, observing no differences in this result between CBT and psychoeducation (Bechdolf et al., 2010). Therefore, psychoeducation has been well documented in other disorders different from ADHD.

Regarding studies on ADHD, psychoeducation has been addressed in few investigations on parents of children with ADHD but not directly in children and adolescents (Montoya et al., 2011). The literature points out that psychoeducation for parents is related to improvements on patients' behavior (McCleary and Ridley, 1999), ADHD symptoms (Sonuga-Barke et al., 2001), adherence to psychopharmacological treatment (Monastra, 2005), and parent and child satisfaction. However, no studies on psychoeducation for adults with ADHD have been published.

The present study addresses the issue of psychoeducation, as an intervention focused on patients' comprehension of ADHD symptoms, in contrast to CBT, which emphasizes on practice of coping strategies.

The primary aim of the current investigation was to evaluate whether psychoeducation would be associated with improvements on measures of the ADHD core symptoms. The second objective was to investigate the impact of psychoeducation on comorbid symptoms such as anxiety and depression and also on quality of life. Finally, the third objective was to compare the psychoeducational approach with a CBT group. To fulfill these purposes, a psychoeducation group was compared with a CBT group.

This is the first study to evaluate the efficacy of psychoeducation for adults with ADHD who have a partial response to pharmacological treatment.

METHODS

Design

A randomized, prospective, controlled study was carried out with two parallel interventions: psychoeducation and CBT. The participants were randomized using the Statistical Package for the Social Sciences (SPSS) software and were assigned either to psychoeducation or to CBT.

Participants

Patients who were in pharmacological treatment but still reporting clinically significant symptoms were recruited through the Adult ADHD Program at the Hospital Vall d'Hebron in Barcelona.

The inclusion criteria for the participants were to fulfill the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*; American Psychiatric Association [APA], 1994), diagnostic criteria for ADHD, to be older than 18 years, to have stable medication prescribed for 2 months, and to have obtained a minimum score of 24 on the ADHD Rating Scale (ADHD-RS; Du Paul, 1990) and a minimum score of 4 on the Clinical Global Impression–Severity Scale (CGI-S; NIMH, 1985). The exclusion criteria were a history of substance abuse in the past 6 months or current comorbidity of other axis I or II disorders of *DSM-IV* (APA, 1994). Patients with significant symptoms of depression and anxiety measured by the Beck Depression Inventory (BDI) and the State-Trait Anxiety Inventory (STAI), but who did not comply with the criteria for anxiety and affective disorders as measured by the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID-I), were included in this study. Participants who had a history of psychiatric comorbidity but had stabilized symptoms at the moment of the study were also included.

Diagnosis of ADHD was established by experienced senior psychiatrists and psychologists. Clinical interviews were done, and several evaluation instruments were used: Conners' Adult ADHD Diagnostic Interview for *DSM-IV* (Epstein et al., 2001), the ADHD-RS (Du Paul, 1990), and Conners' Adult ADHD Rating Scale–Self-Report: Long Version (CAARS-S; *DSM-IV*; Conners et al., 1999; Erhardt et al., 1999). For differential diagnosis and comorbidity assessment, the SCID-I (First et al., 1996) and *DSM-IV* Axis II (SCID-II; First et al., 1997) were used.

Intervention

The groups were formed by seven to eight participants. The two program groups consisted of 12 weekly sessions scheduled during the course of 3 months. The duration of each group session was 2 hours. Table 1 summarizes the contents of the treatment programs.

Psychoeducation Program

The focus of the program was to provide education and information about ADHD. The contents of the psychoeducation program were basically informative: symptoms recognition (diagnosis and characteristics of ADHD, positive and negative symptoms), disorder comprehension (myths and realities in ADHD), causal and triggering factors (ADHD causes), information about pharmacological and psychological treatment, relaxation, providing information on cognitive aspects (cognitive model of ADHD), and information on behavioral factors of ADHD (attention deficits, difficulties in problem solving and planning). The information given was focused on difficulties in ADHD but not on the solutions of these difficulties. The program also included a psychoeducation session with one family member. No practice skills were included in the program. Neither homework tasks nor material for the

TABLE 1. Contents of the Treatment Programs (Psychoeducation and CBT)

Psychoeducation Program	Cognitive Behavioral Program
Session 1. Myths and realities in ADHD	Session 1. Psychoeducation
Session 2. Diagnosis and characteristics of ADHD	Session 2. Organization and planification
Session 3. ADHD causes and treatments	Session 3. Implication of a family member
Session 4. Implication of a family member	Session 4. Problem solving and task division.
Session 5. Positive and negative symptoms	Session 5. Organization
Session 6. Relaxation	Session 6. Reducing distractibility
Session 7. Planification in ADHD	Session 7. Environmental modification
Session 8. Problem solving in ADHD	Session 8. Behavioral analysis
Session 9. Attention in ADHD	Session 9. Dysfunctional thoughts
Session 10. Cognitive model of ADHD	Session 10. Cognitive restructuring
Session 11. Behavioral factors	Session 11. Procrastination management

participants was given. During the sessions, the psychologists always referred to psychoeducational information and avoided the use of the treatment components included in the cognitive behavioral program. Thus, they directed the content to understanding of the problems associated with ADHD.

Cognitive Behavioral Program

The CBT program was based on the study of Ramos-Quiroga et al. (2008). The program focused on coping skills training: behavioral interventions (distractions delaying, planification skills, and procrastination management) and cognitive techniques (problem solving, functional analysis, thoughts identification, and cognitive restructuring). It also included limited psychoeducation (one session). In contrast with the psychoeducation program, the cognitive behavioral program included skills practice repetition and review of previous learning skills. Thus, the psychologists directed the content to oriented solutions for the difficulties that the patients presented.

Measures

The following measures were administered at baseline (time 1) and repeated at the end of treatment (time 2) to assess ADHD core symptoms (primary outcomes) and anxiety and depression symptoms and quality of life (secondary outcomes).

Primary Outcomes

1. The ADHD-RS (Du Paul, 1990) is an 18-item scale that assesses the diagnostic criteria for ADHD. The patient rates the frequency of each item in the past 6 months on a 4-point Likert scale (0–3).
2. The CAARS-S is a measure that consists of four factors and assesses inattention/memory problems, hyperactivity, impulsivity/emotional instability, and self-esteem. A recent study shows its reliability ($\alpha = 0.75$) in a Catalan population (Amador-Campos et al., 2012).
3. The CGI-S self-report and clinician version (NIMH, 1985) assess the severity of illness on a 7-point scale (a score of 1 indicates not

being ill and a score of 7 indicates being extremely ill). This measure has a clinician version and a self-report version for the patient.

Secondary Outcomes

1. The BDI (Beck et al., 1961) is a 21-item scale where responders rate how they have been feeling during the past week on a 4-point Likert scale (0–3). The Spanish version has a reliability of $\alpha = 0.83$ (Sanz and Vazquez, 1998).
2. The state subscale of the STAI (STAI-S; Spielberger et al., 1986) is a 40-item scale (20 items of anxiety state and 20 items of anxiety trait). It differentiates between the temporary condition of “state anxiety” and the more general and long-standing quality of “trait anxiety.”
3. The Quality of Life Enjoyment and Satisfaction Questionnaire (QLESQ; Endicott et al., 1993) is a 93-item scale and consists of eight quality of life dimensions (health and activities, mood, work, household, studies, free time, social relationships, and general activities). Recent results support the validity of this measure of quality of life in adults with ADHD (Mick et al., 2008).

Procedure

Patients with partial response to the pharmacological treatment were referred to this study by clinicians of the team; hence, 40 adults with ADHD in pharmacological treatment through the ADHD Program at Hospital Vall d’Hebron were screened for this study.

Of these 40 patients screened, 8 were excluded. Two did not meet the inclusion criteria because they obtained a low score on the ADHD-RS, four declined to participate because of timetable incompatibility, and two could not be contacted. Therefore, 32 individuals were randomly assigned by the SPSS program to the two treatment conditions. Figure 1 summarizes the flow of the participants through each stage of this study.

Self-report measures and the CGI-S clinician version were completed at pretreatment (time 1). Outcome measures were repeated at the end of the treatment (time 2). The pretreatment and posttreatment

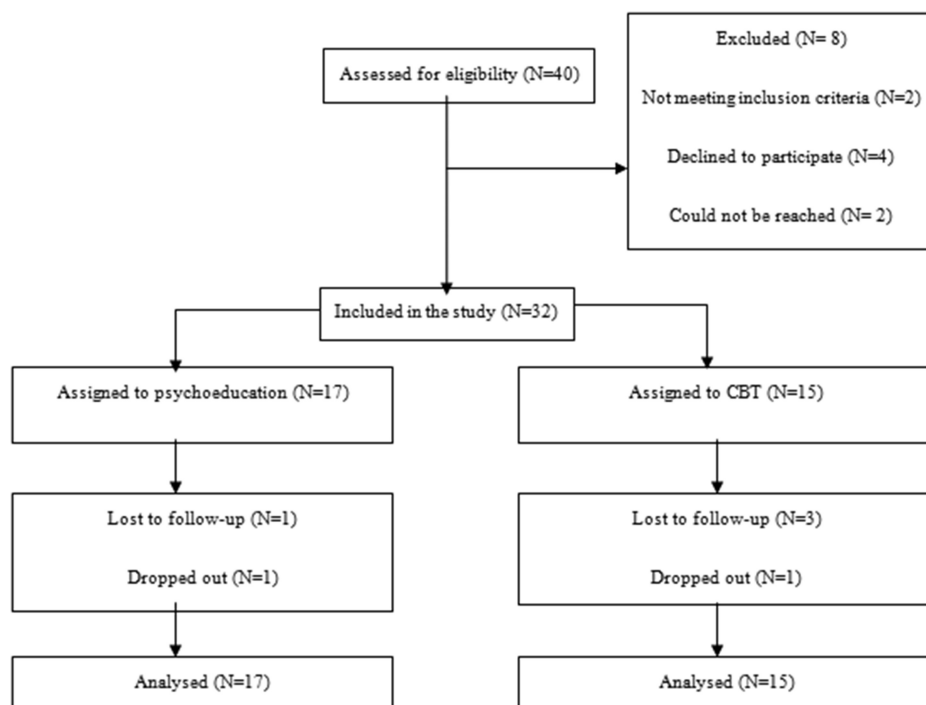


FIGURE 1. Recruiting process and the participants in this study.

TABLE 2. Participants' Characteristics

Characteristic	Psychoeducation (n = 17)		Cognitive Behavioral (n = 15)		p
	n	%	n	%	
Sex					0.297
Male	6	35.2%	9	60%	
Female	11	64.7%	6	40%	
Marital status					0.271
Married	9	52.94%	3	20%	
Divorced	3	17.64%	7	46.66%	
Single	5	29.41%	5	33.33%	
Level of education					0.964
Primary school	2	11.76%	2	13.33%	
Secondary/baccalaureate	6	35.29%	4	26.66%	
Vocational	6	35.29%	6	40%	
University degree	3	17.64%	3	20%	
Employment					0.271
Working	13	76.47%	9	60%	
Unemployed	4	23.52%	4	26.66%	
Studying	0	—	2	13.33%	
ADHD subtype					0.306
Inattentive	6	35.29%	2	13.33%	
Combined	11	64.7%	13	86.66%	
Medication					0.583
Methylphenidate	13	76.47%	13	86.66%	
Atomoxetine	3	17.64%	2	13.33%	
Bupropion	1	5.88%	0	—	
	Mean	SD	Mean	SD	p
Age, yrs	39.53	5.91	39.40	9.30	0.806

evaluations were conducted by a psychologist blinded to this study. The timing of the evaluation assessments was the same for both groups. All participants stayed on stable pharmacological treatment during the whole treatment.

A written and structured manual designed for this study was used to ensure treatment consistency. The two programs (psychoeducation and CBT) were conducted by the same two clinical psychologists. Before the beginning of this study, they were trained to adhere to the content of each treatment condition and were supervised regarding their adherence to the treatment, which was rated on a checklist. The supervisor of the treatment, who also designed the manual and the treatment structure, checked the proscribed content of the sessions. The checklists revealed no differences between the two groups in the mean ratings of the therapists' adherence to the two treatment conditions, and no contamination between psychoeducation and cognitive behavioral intervention was observed. This study was approved by the ethics committee of the hospital, and all the participants signed an informed consent document.

Statistical Analysis

Data were analyzed (using SPSS version 20) according to intent-to-treat principles using a last observation carried forward procedure. An analysis of variance for repeated measures was performed, analyzing group and time effect and its interaction effect. The treatment groups were compared on baseline characteristics using independent *t*-test and chi-square analyses to verify the homogeneous distribution of variables between the groups. All reported results were significant at the 5% level. Cohen's *d* was calculated to estimate the effect size of outcomes between the treatment groups.

RESULTS

Baseline Characteristics

Of the 32 participants, 17 were women (46.9%) and 15 were men (53.1%). The mean age of the sample was 39.47 (SD, 7.5); 31.3% of the patients were single, 50% were married, and 18.8% were divorced. Most of the participants were working at the moment of this study (68.8%), 25% were unemployed, and 6.3% were currently students. Seventy-five percent of the sample showed ADHD combined type; and 25%, inattentive type. Referring to their level of education, 12.5% of the sample had completed primary school; 31.3%, secondary and baccalaureate; 37.5%, vocational postsecondary studies; and 18.8%, university. All the patients were in psychopharmacological treatment: 81.3% of them were treated with methylphenidate; 15.6%, with atomoxetine; and 3.1%, with bupropion. Table 2 shows the participants' characteristics.

At baseline, the two treatment conditions did not differ by socio-demographic characteristics. A series of independent *t*-tests also revealed no baseline differences between the two conditions on any of the outcome variables: rating ($p = 0.65$), BDI ($p = 0.145$), STAI ($p = 0.14$), QLESQ ($p = 0.558$), CGI-S self-report ($p = 0.074$) and CGI-S clinician ($p = 0.059$), CAARS-S inattention ($p = 0.263$), CAARS-S impulsivity ($p = 0.806$), CAARS-S hyperactivity ($p = 0.91$), and CAARS-S self-esteem ($p = 0.718$).

Program Completion Rate

Of the 32 participants who commenced the group, 30 (93.75%) completed treatment and 26 completed the follow-up assessments: 15 in the psychoeducation group and 11 in the cognitive behavioral

TABLE 3. Results

Measure	Psychoeducation (<i>n</i> = 17)		CBT (<i>n</i> = 15)		Cohen's <i>d</i>
	Baseline Mean (SD)	Outcome Mean (SD)	Baseline Mean (SD)	Outcome Mean (SD)	
Primary outcome					
ADHD-RS	30.53 (10.26)	24.29 (9.89)	31.47 (7.75)	25.6 (10.85)	0.12**
CAARS-S inattention	26.17 (4.96)	18.58 (8.55)	23.26 (7)	19.93 (8.63)	0.15**
CAARS-S hyperactivity	17.23 (8.98)	13.88 (9.05)	16.53 (9.7)	15.6 (8.62)	0.19**
CAARS-S impulsivity	18.05 (8.35)	14.76 (9.13)	18.4 (7.79)	17.6 (8.46)	0.32*
CAARS-S self-esteem	10.58 (4.59)	8.29 (6.09)	10.06 (4.55)	9 (5.4)	0.12*
CGI-S self-report	4.64 (0.49)	4.17 (1.01)	5.06 (0.7)	4.46 (0.74)	0.32**
CGI-S clinician	4.47 (0.51)	4.15 (0.58)	4.8 (0.41)	4.33 (0.48)	0.34**
Secondary outcome					
BDI	18.11 (13.42)	13.64 (12.38)	12.13 (9.34)	12.4 (11.07)	0.10**
STAI-S	33.23 (14.1)	29.41 (12.67)	24.86 (10.79)	25.20 (11.16)	0.35**
QLESQ	183 (67.78)	207.35 (80.47)	219.8 (91.12)	240.49 (113.25)	0.33*

p* < 0.05.*p* < 0.01.

group therapy. In the psychoeducation group, one subject dropped out after five sessions because of timetable incompatibilities, and one was lost to follow-up because he did not turn up for the posttreatment assessment. In the CBT group, one dropped out because of illness at session 6, and three were lost at follow-up because they missed the posttreatment evaluation. There were no significant differences on demographic characteristics between the completers and the noncompleters.

Primary Outcome

A significant effect of time was obtained in all the primary outcome scales, but no main effect of group or any interaction of group × time was found. These results indicated that both groups improved on ADHD core symptoms from baseline regardless of the treatment condition they had been assigned. Small effects sizes were found.

ADHD Rating Scale

Main effect of time was observed ($F[1.30] = 12.45, p = 0.001$). However, there was no significant interaction of time × group.

Conners' Adult ADHD Rating Scale–Self-Report

There was a main effect of time on all the subscales, but there was no significant interaction of time × group or effect of group: CAARS-S inattention/memory (time $F[1.30] = 20.203, p = 0.000$), CAARS-S hyperactivity/restlessness (time $F[1.30] = 11.771, p = 0.002$), CAARS-S impulsivity/emotional lability (time $F(1.30) = 5.775, p = 0.023$), CAARS-S self-esteem (time $F[1.30] = 7.211, p = 0.012$).

ADHD severity decreased significantly at the posttreatment assessment in both groups (CGI-S self-report: time $F[1.30] = 12.549, p = 0.001$, and CGI-S clinician: time $F[1.30] = 53.368, p = 0.000$).

Secondary Outcome

The results on secondary outcome indicated that psychoeducation and CBT obtained improvements on quality of life and comorbid symptoms such as anxiety and depression, but no statistical differences between the groups were obtained. Small effects sizes were found.

A significant effect of time was observed on depression, anxiety symptoms, and quality of life in both groups, but there were no significant effects in relation to group or to the interaction between group and time (STAI-S: time $F[1.30] = 1.079, p = 0.003$; BDI: time $F[1.30] = 3.23, p = 0.002$; QLESQ: time $F[1.30] = 6.63, p = 0.015$).

The mean and standard deviation scores for all outcome variables are presented in Table 3.

DISCUSSION

The primary aim of the present study was to assess the efficacy of psychoeducation as compared with a CBT group in medication-treated adults with ADHD who still reported clinically significant symptoms. The results indicate that psychoeducation could be an effective treatment in reducing ADHD core symptoms and comorbid symptoms such as anxiety and depression that have an important functional impairment in adults with ADHD. The results suggest a modest reduction of symptoms from pretreatment evaluation on the ADHD-RS (a decrease of 6–8 points) to posttreatment. The sample of the study had high scores on the ADHD-RS and on the CGI-S at baseline. Thus, psychoeducation could be an effective treatment of patients with a moderate rate of severity in ADHD symptoms.

Psychoeducation improves attention deficits and reduces hyperactivity-impulsivity symptoms. The findings overcome previous studies of meta-cognitive therapy that demonstrated improvements on inattention symptoms but no statistically significant differences in hyperactivity-impulsivity symptoms (Solanto et al., 2010). The findings also overcome cognitive rehabilitation studies that have shown no improvements on comorbid symptoms (Stevenson et al., 2002, 2003). The present investigation shows similar results to those demonstrated by CBT in previous studies (Rostain and Ramsay, 2006; Safren et al., 2005, 2010; Virta et al., 2010).

Previous systematic reviews (Knouse and Safren, 2010; Weiss et al., 2008) hypothesize that the active ingredient of CBT's efficacy is the repetition of compensatory strategies of ADHD symptoms. Previous literature of psychoeducation points out that psychoeducation improves on understanding and insight about the disease (Bramham et al., 2009), and this can affect individual general functioning. Adults with ADHD who have not been correctly diagnosed in childhood may have experienced years of failure and rejection, which may have become internalized (Young et al., 2008). It is possible that a deeper and fuller understanding of the neuropsychiatric mechanisms of the disorder allows these individuals to reattribute the blame for their difficulties externally and, therefore, lessen its effect on self-esteem (Bramham et al., 2009). It is also hypothesized that psychoeducation helps the patient to understand the disorder, and this may facilitate the development of effective strategies for coping with the symptoms of the

disorder (Colom, 2011). However, more studies are needed to fully ascertain the mechanism of change that makes psychoeducation effective.

There are several limitations to the present investigation, which is the first pilot study on psychoeducation for adults with ADHD. The sample was small in both groups. Symptoms assessment was not verified by an external observer. Future controlled studies of psychoeducation are needed with rigorous methodology so that these can contribute to find out which psychological mechanisms of psychoeducation can help improve ADHD symptoms and decrease functional impairment in patients' daily lives.

Despite these limitations, the current study points out the potential benefits of psychoeducation in adults with ADHD. Psychoeducation focuses on comprehension of ADHD: identification of symptoms and cognitive behavioral factors of ADHD. This comprehension could change erroneous attributions or beliefs of the disorder. These targets can be a first step for achieving adaptive coping strategies, can increment motivation to change, and can increase treatment adherence. The preliminary findings of the current study suggest that including psychoeducation in psychological treatment programs could improve the effectiveness of psychological interventions.

In conclusion, psychoeducation could be a successful approach for adults with ADHD in pharmacological treatment who still have significant symptoms. This pilot study raises the need to develop more studies on psychoeducation programs to confirm these preliminary findings and therefore prove the usefulness of this approach for clinical practice.

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DISCLOSURES

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The authors declare no conflict of interest.

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